We claim:

1       1.      A method of extracting electrical characteristics from an integrated

2    circuit layout, said method comprising:

3          dividing said integrated circuit layout into at least one extraction sub problem;

4          identifying a set of physical parameters that define said extraction sub problem

5              from said integrated circuit layout;

6          supplying said set of physical parameters to a machine-learning model trained

7              with Bayesian inference implemented with a Monte Carlo method; and

8          calculating at least one electrical characteristic for said extraction sub problem by

9              analyzing said set of physical parameters with said machine-learning model

10             trained with Bayesian inference implemented with a Monte Carlo method.

1       2.      The method as claimed in claim 1 wherein said electrical

2    characteristic comprises capacitance.

1       3.      The method as claimed in claim 1 wherein said electrical

2    characteristic comprises resistance.

1       4.      The method as claimed in claim 1 wherein said extraction sub

2    problem comprises a net.

1         5.      The method as claimed in claim 1 wherein said extraction sub

2   problem comprises a section of interconnect wiring.

1         6.      The method as claimed in claim 1 wherein one of said set of

2   physical parameters comprises a distance between a pair of interconnect lines.

1         7.      The method as claimed in claim 1 wherein one of said set of

2   physical parameters comprises a wire width.

1         8.      The method as claimed in claim 1 wherein one of said set of

2   physical parameters comprises a wire length.

1         9.      The method as claimed in claim 1, said method further comprising:

2       selecting said machine-learning model from a plurality of machine-learning

3          models.

1       10.    The method as claimed in claim 1 wherein calculating at least one

2    electrical characteristic for said extraction sub problem comprises:

3         determining a capacitance per unit length for a subsection of interconnect wiring;

4            and

5         multiplying said capacitance per unit length by a length of said subsection of

6            interconnect wiring.

1       11.    A computer readable medium, said computer readable medium

2    comprising an arranged set of computer instructions for:

3         dividing an integrated circuit layout into at least one extraction sub problem;

4         identifying a set of physical parameters that define said extraction sub problem

5            from said integrated circuit layout;

6         supplying said set of physical parameters to a machine-learning model trained

7            with Bayesian inference implemented with a Monte Carlo method; and

8         calculating at least one electrical characteristic for said extraction sub problem by

9            analyzing said set of physical parameters with said machine-learning model

10          trained with Bayesian inference implemented with a Monte Carlo method.

1       12.    The computer readable medium as claimed in claim 11 wherein

2    said electrical characteristic comprises capacitance.

1          13.     The computer readable medium as claimed in claim 11 wherein

2 said electrical characteristic comprises resistance.

1          14.     The computer readable medium as claimed in claim 11 wherein

2 said extraction sub problem comprises a net.

1          15.     The computer readable medium as claimed in claim 11 wherein

2 said extraction sub problem comprises a section of interconnect wiring.

1          16.     The computer readable medium as claimed in claim 11 wherein

2 one of said set of physical parameters comprises a distance between a pair of interconnect

3 lines.

1          17.     The computer readable medium as claimed in claim 11 wherein

2 one of said set of physical parameters comprises a wire width.

1          18.     The method as claimed in claim 1 wherein one of said set of

2 physical parameters comprises a wire length.

1    19.    The computer readable medium as claimed in claim 11 wherein

2  said arranged set of computer instructions further perform:

3        selecting said extraction sub problem model from a plurality of extraction sub

4            problem models.


1    20.    The computer readable medium as claimed in claim 11 wherein a

2  subset of computer instructions for calculating at least one electrical characteristic for

3  said extraction sub problem perform the follow:

4        determining a capacitance per unit length for a subsection of interconnect wiring;

5            and

6        multiplying said capacitance per unit length by a length of said subsection of

7            interconnect wiring.